

## SEQUENCE LISTING

<110> Pettersson, Dan  
 Wu, Wenping  
 Fuglsang, Claus

<120> Thermostable Enzyme Compositions

<130> 10254.204-US

<160> 16

<170> PatentIn version 3.2

<210> 1

<211> 1008

<212> DNA

<213> *Thermoascus aurantiacus*

<220>

<221> sig\_peptide

<222> (1)..(90)

<400> 1

atgaagctcg gctctctcgt gctcgctctc agcgcagcta ggcttacact gtcggcccct	60
ctcgcagaca gaaagcagga gaccaagcgt gcgaaagtat tccaatgggt cggttcgaac	120
gagtccggtg ctgaattcgg aagccagaac cttccaggag tcgagggaaa ggattatata	180
tggcctgatc ccaacaccat tgacacattg atcagcaagg ggatgaacat ctttcgtgtc	240
ccctttatga tggagagatt ggttcccaac tcaatgaccg gctctccgga tccgaactac	300
ctggcagatc tcatagcgac tgtaaatgca atcaccacaga aagggtgccta cgccgtcgtc	360
gatcctcata actacggcag atactacaat tctataatct cgagcccttc cgatttccag	420
accttctgga aaacggctgc ctcacagttt gcttcgaatc cactgggtcat cttcgacact	480
aataacgaat accacgatat ggaccagacc ttagtcctca atctcaacca ggccgctatc	540
gacggcatcc gttccgccgg agccacttcc cagtacatct ttgtcgaggg caattcgtgg	600
accggggcat ggacctggac gaacgtgaac gataacatga aaagcctgac cgacccatct	660
gacaagatca tatacgagat gcaccagtac ctggactctg acggatccgg gacatcagcg	720
acctgcgtat cttcgaccat cgggtcaagag cgaatcacca gcgcaacgca gtggctcagg	780
gccaacggga agaagggcat catcggcgag tttgcgggag gagccaacga cgtctgcgag	840
acggccatca cgggcatgct ggactacatg gcccagaaca cagacgtctg gactggcgcc	900
atctggtggg cggccggggc gtggtgggga gactacatat tctccatgga gccggacaat	960

ggcatcgcgt atcagcagat acttcctatt ttgactccgt atctttga

1008

<210> 2  
<211> 335  
<212> PRT  
<213> *Thermoascus aurantiacus*

<220>  
<221> SIGNAL  
<222> (1)..(30)

<400> 2

Met Lys Leu Gly Ser Leu Val Leu Ala Leu Ser Ala Ala Arg Leu Thr  
1 5 10 15

Leu Ser Ala Pro Leu Ala Asp Arg Lys Gln Glu Thr Lys Arg Ala Lys  
20 25 30

Val Phe Gln Trp Phe Gly Ser Asn Glu Ser Gly Ala Glu Phe Gly Ser  
35 40 45

Gln Asn Leu Pro Gly Val Glu Gly Lys Asp Tyr Ile Trp Pro Asp Pro  
50 55 60

Asn Thr Ile Asp Thr Leu Ile Ser Lys Gly Met Asn Ile Phe Arg Val  
65 70 75 80

Pro Phe Met Met Glu Arg Leu Val Pro Asn Ser Met Thr Gly Ser Pro  
85 90 95

Asp Pro Asn Tyr Leu Ala Asp Leu Ile Ala Thr Val Asn Ala Ile Thr  
100 105 110

Gln Lys Gly Ala Tyr Ala Val Val Asp Pro His Asn Tyr Gly Arg Tyr  
115 120 125

Tyr Asn Ser Ile Ile Ser Ser Pro Ser Asp Phe Gln Thr Phe Trp Lys  
130 135 140

Thr Val Ala Ser Gln Phe Ala Ser Asn Pro Leu Val Ile Phe Asp Thr  
145 150 155 160

Asn Asn Glu Tyr His Asp Met Asp Gln Thr Leu Val Leu Asn Leu Asn  
165 170 175

Gln Ala Ala Ile Asp Gly Ile Arg Ser Ala Gly Ala Thr Ser Gln Tyr  
180 185 190

Ile Phe Val Glu Gly Asn Ser Trp Thr Gly Ala Trp Thr Trp Thr Asn  
195 200 205

Val Asn Asp Asn Met Lys Ser Leu Thr Asp Pro Ser Asp Lys Ile Ile  
210 215 220

Tyr Glu Met His Gln Tyr Leu Asp Ser Asp Gly Ser Gly Thr Ser Ala  
225 230 235 240

Thr Cys Val Ser Ser Thr Ile Gly Gln Glu Arg Ile Thr Ser Ala Thr  
245 250 255

Gln Trp Leu Arg Ala Asn Gly Lys Lys Gly Ile Ile Gly Glu Phe Ala  
260 265 270

Gly Gly Ala Asn Asp Val Cys Glu Thr Ala Ile Thr Gly Met Leu Asp  
275 280 285

Tyr Met Ala Gln Asn Thr Asp Val Trp Thr Gly Ala Ile Trp Trp Ala  
290 295 300

Ala Gly Pro Trp Trp Gly Asp Tyr Ile Phe Ser Met Glu Pro Asp Asn  
305 310 315 320

Gly Ile Ala Tyr Gln Gln Ile Leu Pro Ile Leu Thr Pro Tyr Leu  
325 330 335

<210> 3  
<211> 21  
<212> PRT  
<213> Thermoascus aurantiacus

<220>  
<221> MISC\_FEATURE  
<223> N-terminal peptide

<220>  
<221> MISC\_FEATURE  
<222> (2)..(2)  
<223> Xaa in position 2 means any amino acid

<400> 3

Asn Xaa Leu Val Phe Thr Ser Phe Gly Ser Asn Glu Ser Gly Ala Glu  
1 5 10 15

Phe Gly Ser Gln Asn  
20

<210> 4

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Primer

<220>

<221> misc\_feature

<223> K means T or C

M means A or G

N means T or C or A or G

<220>

<221> misc\_feature

<222> (9)..(9)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (12)..(12)

<223> n is a, c, g, or t

<220>

<221> misc\_feature

<222> (15)..(15)

<223> n is a, c, g, or t

<400> 4

aakgamtcng gngcngaatt

20

<210> 5

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Primer

<220>

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<223> K means T or C

M means A or G

N means T or C or A or G

<220>  
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<222> (9)..(9)  
<223> n is a, c, g, or t

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<222> (15)..(15)  
<223> n is a, c, g, or t

<400> 5  
aakgamtcng gngcngagtt

20

<210> 6  
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<212> DNA  
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<220>  
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<220>  
<221> misc\_feature  
<223> K means T or C  
M means A or G  
N means T or C or A or G

<220>  
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<222> (12)..(12)  
<223> n is a, c, g, or t

<220>  
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<222> (15)..(15)  
<223> n is a, c, g, or t

<400> 6  
aakgamagkg gngcngaatt

20

<210> 7  
<211> 20  
<212> DNA  
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<220>  
<223> Primer

<220>  
 <221> misc\_feature  
 <223> K means T or C  
 M means A or G  
 N means T or C or A or G

<220>  
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 <222> (12)..(12)  
 <223> n is a, c, g, or t

<220>  
 <221> misc\_feature  
 <222> (15)..(15)  
 <223> n is a, c, g, or t

<400> 7  
 aakgamagkg gngcngagtt 20

<210> 8  
 <211> 18  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Primer

<400> 8  
 aagatgtact gggaagtg 18

<210> 9  
 <211> 21  
 <212> DNA  
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<220>  
 <223> Primer

<400> 9  
 tggttgagat tgaggactaa g 21

<210> 10  
 <211> 21  
 <212> DNA  
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<220>  
 <223> Primer

<400> 10  
 gattatagaa ttgtagtatc t 21

<210> 11  
 <211> 19  
 <212> DNA  
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<220>  
 <223> Primer

<400> 11  
 agagccggtc attgagttg 19

<210> 12  
 <211> 20  
 <212> DNA  
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<220>  
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<400> 12  
 atgaagctcg gctctctcgt 20

<210> 13  
 <211> 21  
 <212> DNA  
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<220>  
 <223> Primer

<400> 13  
 cttgtctcct gtctcgttca c 21

<210> 14  
 <211> 225  
 <212> PRT  
 <213> Thermomyces lanuginosus

<220>  
 <221> mat\_peptide  
 <222> (31)..(225)

<400> 14

Met Val Gly Phe Thr Pro Val Ala Leu Ala Ala Leu Ala Ala Thr Gly  
 -30 -25 -20 -15

Ala Leu Ala Phe Pro Ala Gly Asn Ala Thr Glu Leu Glu Lys Arg Gln  
 -10 -5 -1 1

Thr Thr Pro Asn Ser Glu Gly Trp His Asp Gly Tyr Tyr Tyr Ser Trp  
5 10 15

Trp Ser Asp Gly Gly Ala Gln Ala Thr Tyr Thr Asn Leu Glu Gly Gly  
20 25 30

Thr Tyr Glu Ile Ser Trp Gly Asp Gly Gly Asn Leu Val Gly Gly Lys  
35 40 45 50

Gly Trp Asn Pro Gly Leu Asn Ala Arg Ala Ile His Phe Glu Gly Val  
55 60 65

Tyr Gln Pro Asn Gly Asn Ser Tyr Leu Ala Val Tyr Gly Trp Thr Arg  
70 75 80

Asn Pro Leu Val Glu Tyr Tyr Ile Val Glu Asn Phe Gly Thr Tyr Asp  
85 90 95

Pro Ser Ser Gly Ala Thr Asp Leu Gly Thr Val Glu Cys Asp Gly Ser  
100 105 110

Ile Tyr Arg Leu Gly Lys Thr Thr Arg Val Asn Ala Pro Ser Ile Asp  
115 120 125 130

Gly Thr Gln Thr Phe Asp Gln Tyr Trp Ser Val Arg Gln Asp Lys Arg  
135 140 145

Thr Ser Gly Thr Val Gln Thr Gly Cys His Phe Asp Ala Trp Ala Arg  
150 155 160

Ala Gly Leu Asn Val Asn Gly Asp His Tyr Tyr Gln Ile Val Ala Thr  
165 170 175

Glu Gly Tyr Phe Ser Ser Gly Tyr Ala Arg Ile Thr Val Ala Asp Val  
180 185 190

Gly  
195

<210> 15  
<211> 439  
<212> PRT  
<213> Peniophora lycii



<220>

<221> mat\_peptide

<222> (31)..(439)

<400> 15

Met Val Ser Ser Ala Pro Ala Pro Ser Ile Leu Leu Ser Leu Met Ser  
-30 -25 -20 -15

Ser Leu Ala Leu Ser Thr Gly Pro Ser Pro Val Ala Ala Gly Leu Pro  
-10 -5 -1 1

Ile Pro Ala Gly Ala Thr Ser Ala Thr Gly Pro Thr Ala Pro Pro Pro  
5 10 15

Pro Val Gly Pro Thr Ala Ala Pro Pro Gly Gly Cys Thr Val Thr Gly  
20 25 30

Val Ala Leu Ile Gly Ala His Gly Ala Ala Thr Pro Thr Ser Gly Ala  
35 40 45 50

Ala Ser Ala Gly Val Ala Ala Val Ala Leu Ile Gly Met Ala Ala Pro  
55 60 65

Pro Thr Ala Pro Leu Thr Gly Pro Leu Ala Ala Pro Val Thr Leu Pro  
70 75 80

Gly Val Ala Ala Leu Leu Pro Pro Gly Ala Ala Gly Ser His Gly Thr  
85 90 95

Gly Thr Ala Met Thr Thr Ala Thr Ser Thr Leu Pro Gly Gly Gly Ala  
100 105 110

Val Pro Pro Val Ala Ala Ala Gly Ala Gly Ala Val Val Ala Ser Ser  
115 120 125 130

Thr Ala Thr Thr Ala Gly Pro Gly Ala Ala Ser Gly Gly Thr Val Leu  
135 140 145

Pro Thr Leu Gly Val Val Leu Gly Gly Gly Gly Ala Cys Thr Leu Cys  
150 155 160

Ala Ala Met Cys Pro Ala Gly Val Ala Gly Ala Gly Ser Thr Thr Thr  
165 170 175

Leu Gly Val Pro Ala Pro Ala Ile Thr Ala Ala Leu Ala Ala Ala Ala  
 180 185 190

Pro Ser Ala Ala Leu Ser Ala Ser Ala Ala Leu Thr Leu Met Ala Met  
 195 200 205 210

Cys Pro Pro Ala Thr Leu Ser Ser Gly Ala Ala Ser Pro Pro Cys Ala  
 215 220 225

Leu Pro Thr Ala Gly Gly Thr Val Ser Thr Gly Thr Thr Thr Ala Leu  
 230 235 240

Ala Leu Thr Thr Gly Thr Gly Pro Gly Ala Ala Leu Gly Pro Val Gly  
 245 250 255

Gly Val Gly Thr Val Ala Gly Leu Leu Ala Ala Leu Thr Gly Gly Ala  
 260 265 270

Val Ala Ala Gly Thr Gly Thr Ala Ala Thr Leu Ala Ser Ala Pro Ala  
 275 280 285 290

Thr Pro Pro Leu Ala Ala Thr Pro Thr Ala Ala Pro Ser His Ala Ala  
 295 300 305

Thr Met Val Pro Ile Pro Ala Ala Leu Gly Leu Pro Ala Ala Thr Ala  
 310 315 320

Leu Ala Pro Leu Leu Pro Ala Gly Ala Ala Leu Thr Val Ala Ser Leu  
 325 330 335

Leu Val Pro Pro Ser Gly His Met Thr Val Gly Leu Leu Ala Cys Ser  
 340 345 350

Gly Leu Gly Ala Val Ala Val Leu Val Ala Ala Ala Val Gly Pro Leu  
 355 360 365 370

Gly Pro Cys Gly Gly Val Ala Gly Val Cys Gly Leu Ser Ala Pro Val  
 375 380 385

Gly Ser Gly Thr Thr Ala Ala Gly Ala Gly Gly Gly Ala Pro Ala Leu  
 390 395 400

Cys Gly Pro Val Pro Ser Gly  
405

<210> 16  
<211> 332  
<212> PRT  
<213> Myceliophthora thermophila

<220>  
<221> mat\_peptide  
<222> (1)..()

<400> 16

Ala Leu Thr Tyr Arg Gly Val Asp Trp Ser Ser Val Val Val Glu Glu  
1 5 10 15

Arg Ala Gly Val Ser Tyr Lys Asn Thr Asn Gly Asn Ala Gln Pro Leu  
20 25 30

Glu Asn Ile Leu Ala Ala Asn Gly Val Asn Thr Val Arg Gln Arg Val  
35 40 45

Trp Val Asn Pro Ala Asp Gly Asn Tyr Asn Leu Asp Tyr Asn Ile Ala  
50 55 60

Ile Ala Lys Arg Ala Lys Ala Ala Gly Leu Gly Val Tyr Ile Asp Phe  
65 70 75 80

His Tyr Ser Asp Thr Trp Ala Asp Pro Ala His Gln Thr Met Pro Ala  
85 90 95

Gly Trp Pro Ser Asp Ile Asp Asn Leu Ser Trp Lys Leu Tyr Asn Tyr  
100 105 110

Thr Leu Asp Ala Ala Asn Lys Leu Gln Asn Ala Gly Ile Gln Pro Thr  
115 120 125

Ile Val Ser Ile Gly Asn Glu Ile Arg Ala Gly Leu Leu Trp Pro Thr  
130 135 140

Gly Arg Thr Glu Asn Trp Ala Asn Ile Ala Arg Leu Leu His Ser Ala  
145 150 155 160

Ala Trp Gly Ile Lys Asp Ser Ser Leu Ser Pro Lys Pro Lys Ile Met  
165 170 175

Ile His Leu Asp Asn Gly Trp Asp Trp Gly Thr Gln Asn Trp Trp Tyr  
180 185 190

Thr Asn Val Leu Lys Gln Gly Thr Leu Glu Leu Ser Asp Phe Asp Met  
195 200 205

Met Gly Val Ser Phe Tyr Pro Phe Tyr Ser Ser Ser Ala Thr Leu Ser  
210 215 220

Ala Leu Lys Ser Ser Leu Asp Asn Met Ala Lys Thr Trp Asn Lys Glu  
225 230 235 240

Ile Ala Val Val Glu Thr Asn Trp Pro Ile Ser Cys Pro Asn Pro Arg  
245 250 255

Tyr Ser Phe Pro Ser Asp Val Lys Asn Ile Pro Phe Ser Pro Glu Gly  
260 265 270

Gln Thr Thr Phe Ile Thr Asn Val Ala Asn Ile Val Ser Ser Val Ser  
275 280 285

Arg Gly Val Gly Leu Phe Tyr Trp Glu Pro Ala Trp Ile His Asn Ala  
290 295 300

Asn Leu Gly Ser Ser Cys Ala Asp Asn Thr Met Phe Ser Gln Ser Gly  
305 310 315 320

Gln Ala Leu Ser Ser Leu Ser Val Phe Gln Arg Ile  
325 330